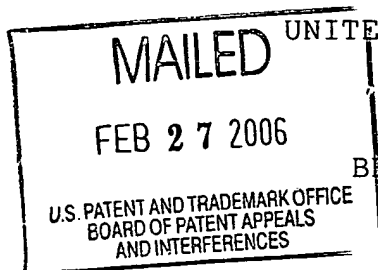


The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.



UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GEORGE D. CHANDLEY, RAYMOND F. RUFFINI
and NATHAN C. CROWELL

Appeal No. 2006-0594
Application No. 09/740,708

ON BRIEF

Before KIMLIN, PAK and KRATZ, Administrative Patent Judges.
KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 10-24.

Claims 10 and 16 are illustrative:

10. A method of increasing the service life of a titanium aluminide alloy in contact with a molten metallic material comprising aluminum, comprising including in the titanium aluminide alloy a rare earth element in an effective amount to prolong resistance to attack of the alloy by the molten metallic material and contacting the alloy with the molten metallic material.

16. A method of prolonging resistance of a titanium aluminide alloy to a molten metallic material comprising aluminum, comprising contacting the alloy for a time with the molten metallic material, removing the alloy from contact with the

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molten metallic material, cleaning the alloy to remove the metallic material thereon, heating the alloy in an oxygen-bearing atmosphere at elevated superambient temperature to form a surface oxide thereon, and re-contacting the alloy having the surface film thereon with the molten metallic material.

The examiner relies upon the following references as evidence of obviousness:

Nazmy et al. (Nazmy)	5,286,443	Feb. 14, 1994
Chandley et al. (Chandley)	6,283,195 B1	Sep. 4, 2001
		(filed Feb. 2, 1999)
Choudhury et al. (Choudhury)	6,443,212 B1	Sep. 3, 2002
		(filed Oct. 1, 1999)
Chandley et al. (WO '973)	WO 00/45973	Aug. 10, 2000
(PCT International Application)		

Appellants' claimed invention is directed to a method of increasing the service life of a titanium aluminide alloy while it is in contact with a molten material comprising aluminum. One method involves including a rare earth element in the titanium aluminide alloy (independent claims 10 and 21), and another method entails heating the alloy in an oxygen-bearing atmosphere to form a surface oxide thereon (claim 16).

Appealed claims 10-15 and 21-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over WO '973 in view of Nazmy. Claims 16-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the stated combination of references further in view of Choudhury. In addition, claims 10-15 and 21-24 stand rejected under the judicially created doctrine of

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obviousness-type double patenting over claims 1-14 of U.S. Patent No. 6,283,195 in view of Nazmy.

We have thoroughly reviewed each of appellants' arguments for patentability, as well as the specification data relied upon in support thereof. However, we find ourselves in complete agreement with the examiner's reasoned analysis and application of the prior art, as well as her cogent disposition of the arguments raised by appellants. Accordingly, we will adopt the examiner's reasoning as our own in sustaining the rejections of record, and we add the following for emphasis only.

Concerning the rejection of claims 10-15 and 21-24 under § 103 over WO '973 in view of Nazmy, we fully concur with the examiner's reasoning that it would have been obvious for one of ordinary skill in the art to add yttrium, a rare earth element, to the Ti-Al alloy of WO '973 for the purpose of providing excellent hardness and strength at high temperatures, as expressly taught by Nazmy. Although, as urged by appellants, Nazmy does not specifically teach that the inclusion of yttrium increases the service life of the Ti-Al alloy in contact with an aluminum-containing molten material, we subscribe to the examiner's reasoning that one of ordinary skill in the art would have reasonably expected the presently claimed effect because the

modified alloy of WO '973 would have greatly increased heat resistance/high temperature strength at temperatures at which aluminum is in the molten state. Moreover, we find no fault in the examiner's reasoning that one of ordinary skill in the art, properly motivated to modify the alloy of WO '973 for the reasons set forth by Nazmy, would have inherently also realized the benefit of increasing the service life of the alloy when in contact with a molten metal comprising aluminum. Appellants have advanced no reason why one of ordinary skill in the art would have expected otherwise.

Appellants rely upon data at page 4 of the present specification which demonstrates that the resistance to attack by molten aluminum was increased when yttrium was included in the Ti-Al alloy. However, appellants have proffered no objective evidence that such results would be considered truly unexpected by one of ordinary skill in the art. In re Merck & Co., 800 F.2d 1091, 1099, 231 USPQ 375, 381 (Fed. Cir. 1986); In re Klosak, 455 F.2d 1077, 1080, 173 USPQ 14, 16 (CCPA 1972). Like the examiner, we are persuaded that, based on the Nazmy disclosure, one of ordinary skill in the art would have expected the results reported in the specification. It is well settled that expected results are evidence of obviousness just as unexpected results

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are evidence of nonobviousness. In re Skoner, 517 F.2d 947, 950, 186 USPQ 80, 82 (CCPA 1975).

We are also not persuaded by appellants' argument that improper hindsight is necessary for the examiner to choose yttrium from the elements disclosed by Nazmy. As pointed out by the examiner, "Nazmy teaches strong motivation to select Y from the markush group named in the abstract - namely, Nazmy teaches that adding Y has the strongest effect on increasing hardness and strength (column 14[,] lines 25-28)" (page 12 of Answer, second paragraph).

Turning to the rejection of claims 16-20 under § 103 over WO '973 in view of Nazmy and Choudhury, appellants have not rebutted the examiner's factual determination that WO '973 teaches heating the Ti-Al alloy to a temperature of greater than 800°F in an air atmosphere to form an in-situ oxide film, which renders the alloy non-reactive with molten aluminum (see page 6 of Answer, lines 13-15) and greatly increases the service life (see page 7 of Answer, first paragraph). Also, we totally agree with the examiner that Choudhury evidences the obviousness of inspecting and cleaning the surfaces of mold cavities when they are open. The examiner properly sites Choudhury at column 7, lines 3-4.

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As for the obviousness-type double patenting rejection, appellants rely upon the same arguments as those presented against the § 103 rejection over WO '973 in view of Nazmy.

In conclusion, based on the foregoing and the reasons well-stated by the examiner, the examiner's decision rejecting the appealed claims is affirmed.


No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (effective Sep. 13, 2004; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sep. 7, 2004)).

AFFIRMED

Edward C. Kimlin
EDWARD C. KIMLIN)
Administrative Patent Judge)


CHUNG K. PAK
Administrative Patent Judge

BOARD OF PATENT
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INTERFERENCES


PETER F. KRATZ
Administrative Patent Judge

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